

WHAT IS CLAIMED IS:

- 1 1. A method for voice activity detection on an input signal using a log
2 likelihood ratio (LLR), comprising the steps of:
3 determining and tracking instant, minimum and maximum power levels of the
4 input signal;
5 selecting a first predefined range of signals of the input signal to be considered as
6 noise signals;
7 selecting a second predefined range of signals of the input signal to be considered
8 as voice signals;
9 using the voice signals, noise signals and power levels for calculating the LLR;
10 using the LLR for determining a threshold; and
11 using the threshold for differentiating between noise and voice in the input signal.
- 1 2. The method of claim 1, wherein the instant power level is determined by:
2 transforming the input signal into a frequency domain input signal;
3 determining a sum of signal power of a preselected frequency range of the
4 frequency domain input signal; and
5 filtering the sum of signal power.
- 1 3. The method of claim 2, wherein the minimum power level is determined
2 by filtering the instant power level to generate a first filtered signal such that the first filtered
3 signal reacts quickly to a decrease in power and slowly to an increase in power.
- 1 4. The method of claim 3, wherein the maximum power level is determined
2 by filtering the instant power level to generate a second filtered signal such that the second
3 filtered signal reacts quickly to an increase in power and slowly to a decrease in power.
- 1 5. The method of claim 4, wherein the first predefined range of signals
2 comprises all signals within a first power range above the minimum power level.

1 6. The method of claim 4, wherein the second predefined range of signals
2 comprises all signals within a second power range below the maximum power level.

1 7. The method of claim 1, wherein the LLR includes a plurality of values,
2 and wherein the threshold is determined by averaging the values of the LLR for the first
3 predefined range of signals.

4 8. The method of claim 7, wherein the threshold is zero or below.

1 9. The method of claim 8, wherein the threshold is an average of the values
2 of the LLR plus a predefined margin.

1 10. An apparatus including a communications device having a voice activity
2 detection processor for controlling spectral efficient or power efficient voice transmissions
3 relating to an input signal, said voice activity detection processor being configured to execute
4 processing including:

5 determining and tracking instant, minimum and maximum power levels of the
6 input signal;

7 selecting a first predefined range of signals of the input signal to be considered as
8 noise signals;

9 selecting a second predefined range of signals of the input signal to be considered
10 as voice signals;

11 using the voice signals, noise signals and power levels for calculating the LLR;

12 using the LLR for determining a threshold; and

13 using the threshold for differentiating between noise and voice in the input signal.